Chemical Monitoring Reporting Guideline (SSD2)

European Food Safety Authority (EFSA)

Key words: Chemical, SSD2, Food Samples, monitoring, pesticides, additives, VMPR

Correspondence: data.collection@efsa.europa.eu

Acknowledgements: EFSA wishes to thank the following for the support provided to this guideline: Member State representatives of the Networks on Pesticides, Veterinary Medicinal Product Residues, Chemical Occurrence and Additives. EFSA wishes to acknowledge all European competent institutions, Member State bodies and other organisations that provided data for this scientific output.

Suggested citation: EFSA (European Food Safety Authority) 2019. Chemical Monitoring Reporting Guideline (SSD2) doi: 10.5281/zenodo.2543211

ISSN: 2397-8325

Table of contents

doi: 10.5281/zenodo.2543211

1. Introduction

1.1. Background

EFSA receives the results of testing for substances by laboratories in food and feed under

- Regulation (EC) No 396/2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin
- Regulation (EC) No 178/2002 on general food law
- Regulation (EC) No 1881/2006 on occurrence of chemical contaminants in food and feed
- Regulation (EC) No 1333/2008 for food additives data
- Regulation (EC) No 257/2010 ad hoc calls for food additives data
- Council Directive 96/23/EC monitoring of veterinary medicinal products residues (VMPR) in live animals and animal products

Additionally, results on the presence of chemicals in food not covered by the above Regulations are also reported to EFSA (e.g. baby food, fish, feed, pesticide synergist and safeners). It is likely that in the future there may be a requirement for the monitoring of other substances used or occurring in food to ensure consumer safety.

In 2013, EFSA published a revision on Standard Sample Description (EFSA, 2013) (SSD2), which provides the data specification for reporting laboratory results in samples from the food chain. This version incorporates FoodEx2 (EFSA, 2015) a food description system which allows detailed classification of complex food items and is compatible with the EU Menu food consumption surveys (EFSA, 2014). As foreseen at the time of publication in 2013, data providers are now being requested to modify their data management tools from SSD to SSD2. This offers the opportunity to learn from the experiences of SSD and make some modifications which may reduce the reporting burden for data providers and ensure that the data received is fit-for-purpose for compliance assessment, exposure assessment and potentially re-usable for other scientific purposes by EFSA. Input from the recently completed Framework Partnership Agreement pilot between Member States and EFSA has also been considered when preparing this document.

The following documents should be used in conjunction with this document:

- EFSA, 2013. Standard Sample Description ver. 2.0.
- EFSA, 2014. Guidance on Data Exchange version 2.0
- EFSA, 2014. Guidance on the EU Menu methodology
- EFSA, 2015. The food classification and description system FoodEx2 (revision 2)
- EFSA, (2018). Harmonized terminology for scientific research [Data set]
- FoodEx2 browser draft user guide

This document is designed to provide additional guidance on the implementation of the SSD2 and the Guidance on Data Exchange version 2.0 2014 (GDE2) and to solve the issues listed below. This guidance should be used in conjunction with SSD2 and GDE2 which provide details of workflow, data validation and the EFSA Data Collection Framework principles.

1) Multiple domains data collections. The inclusion of data under Council Directive 96/23/EC which includes substances that are contaminants, pesticides and veterinary residues has highlighted the issue of duplicate reporting and uncertainty as to which data collection a sample should be submitted in. It is agreed to create a single SSD2 data collection for the results of laboratory analysis for chemical substances found in food, feed, animals and plants. The results to be included in annual reports will be selected using specific analysis hierarchies for each Regulation or hazard group. The analysis hierarchies will be applied to the PARAM and MTX catalogues plus other catalogues where necessary. The results to be included in automatically generated national reports by EFSA can also include a progId/s filter if

doi: 10.5281/zenodo.2543211

necessary. This approach will simplify reporting from Member States and allow a more holistic assessment of specific hazards of concern for EFSA.

2) Conflicts in mandatory elements and business rules for the same substance in different data collections. In this case some of these requirements come specifically from legislation e.g. requirement to report ccAlpha and ccBeta for VMPR results. However, in other cases they are a result of differing priorities or approaches to data quality when reporting guidelines were specified. This document seeks to resolve conflicts where possible and a review of business rules will be performed in parallel. SSD2 business rules for chemicals will be published and applied to the single data collection. This reporting guideline applies to all the data domains; where an element is defined as optional in this document, this does not preclude it being a mandatory element for the collection of data related to a specific domain or substance and this would continue to be defined in the relevant specific business rules.

3) Compound elements. Some data providers have indicated that the creation of the strings required to report compound elements has resulted in additional technical overheads. This review will result in a schema definition which supports the reporting of each data element listed in the SSD2 specification. However, compound elements will still be supported.

4) Conversion of national values to EFSA catalogue terminology. SSD2 requires the mapping to EFSA coded terminologies and the FoodEx2 system requires a complex mapping to both base terms and facets to fully classify and describe the samples taken. Where there are differences in granularity or philosophy of terminologies used in data provider systems there is a risk of mismapping with subsequent data quality issues. EFSA now provides a catalogue browser application[1] which links to the latest version of the catalogue and web services to enable better conversion.

5) Public Access to Document requests and Open Data. In recent years there have been many requests for access to datasets, largely under the Public Sector Information Directive[2], and as a consequence EFSA is moving to an Open by Default approach for data in the scientific data warehouse. However, this requires that personal information and intellectual property are protected. As a consequence, the use of free text fields is reduced and only those where the content is clearly specified remain. Plus geographical identifiers below country level and unique identifiers which can be linked to public registers of food business operators are required only when necessary to support risk assessment.

All resources linked to this document (structural metadata, catalogues, business rules, schema definitions) will be published in Knowledge Junction in machine readable format and human readable where appropriate.

It is acknowledged that for annual monitoring any subsequent changes proposed (to elements, catalogues or business rules) in October of year X can only be applied to results reported in year X+2 since the changes must be known prior to the sampling officers collecting the samples in year X+1. Data providers are encouraged to contribute to and participate in the processes of revisions on an ongoing basis with emphasis on suggestions being submitted during quarter 3 of each year (July-September).

2. SSD2 Data Model Elements

The focus of this document is on the mandatory elements and the elements required for the preparation of charts and tables used in national reports, EU annual reports, online reports of monitoring data and the elements needed to perform exposure assessment. This focus can reduce the reporting burden for data providers and increase data quality ensuring comprehensive checks on a smaller number of variables. Other SSD2 elements than the ones described in this document can be reported at the discretion of the data provider or by agreement for specific data domains. However in

[1] https://github.com/openefsa/catalogue-browser/releases

[2] http://data.europa.eu/eli/dir/2003/98/oj

doi: 10.5281/zenodo.2543211

the case of food safety incidents or specific studies to investigate factors which may affect the levels of a hazard in tested food items there may be a requirement to complete additional elements (e.g. production dates, hazard specific product descriptions, information on production site hygiene classification/biosecurity level). These study-specific mandatory elements would be specified in the study guideline or reporting instructions issued during the specification and planning phase and prior to the collection of any samples for these targeted data collections.

Specific elements of the SSD2 data model including their references are detailed below where implementation for Chemical Monitoring requires clarification.

Finally, this document considers the Circle of Trust initiative, decisions made in response to Public Access to Document request and European Open Data initiatives in not requesting information which may be subject to data protection unless scientifically justified.

B.01 Sampling programme identification code (progId)

Reporting countries can use this field to specify their own codes for national sampling programmes or projects under which the sample was taken. All samples analysed under a programme for a specific purpose or objective should be grouped under this code. One or more of these codes can be used to group samples where there is a requirement to compare actual samples taken against national sampling plans. Since all data will be submitted via a single data collection this mandatory element can be used by data providers to group similar samples when using validation reports or in cases where a multinational targeted study has been performed to address a food safety issue.

Example	**XML**
A default programme identifier to group all samples to be included in the national report for VMPR	<progId>LT_VMPR</progId>
Total Diet Study conducted in Slovakia in 2016	<progId>SK_TDS_2016</progId>
National pesticide monitoring programme in Italy in 2017	<progId>2017NPMPIT</progId>

B.02 Programme legal reference (progLegalRef)

This data element is used to specify the legal framework for the residue definitions and limits used in the assessment of the results of the monitoring programme. This element is required in a harmonised data collection to support the separation of results into the relevant annual reports and to provide automated legal limit checks once the pesticides limits machine readable file has been extended the other chemical domains.

In order to allow identification of samples which are taken for analysis of parameters falling under more than one legal framework, this element will be changed to allow multiple values. For data providers able to provide multiple values, these will be possible and for those countries not able to do so, they can continue to report the main purpose of the sample as in previous years.

Ideally, it may be appropriate to consider the value and feasibility of reporting the legal framework at a result level rather than in this element at sample level but this would not currently be possible for data providers.

Codes can be selected from the **LEGREF** catalogue.

Example	**XML**
For pesticide residues: code to be used for samples of food products defined in Annex I of **Regulation (EC) No 396/2005** (processed and unprocessed products) taken in the framework of the EU-coordinated programme and the	<progLegalRef>N027A</progLegalRef>

doi: 10.5281/zenodo.2543211

Example	XML
national control programmes defined in Article 29 and 30 of this regulation	
Samples taken under **Directive 96/23/EC**, legislative framework for the control of vet drug residues in samples of animal origin	<progLegalRef>N247A</progLegalRef>
Samples taken under **Regulation (EC) 1333/2008** on food additives	<progLegalRef>N112A</progLegalRef>
Samples where results were assessed against maximum levels for certain contaminants in foodstuffs **Regulation (EC) 1881/2006**	<progLegalRef>N215A</progLegalRef>
Samples of dioxins, dioxin-like PCBs and non-dioxin-like PCBs in foodstuffs Commission **Regulation 1259/2011**	<progLegalRef>N231A</progLegalRef>

B.03 Sampling Strategy (sampStrategy)

This element allows the separation of samples according to the sampling methodology applied.

Codes can be selected from the **SAMPSTR** catalogue.

Example	XML
For samples that were taken as a surveillance samples (random sampling), e.g. for the EU-coordinated pesticides monitoring programme or samples that were selected without specific targeting towards products or producers that were likely to be non-compliant. **(Objective sampling)**	<sampStrategy>ST10A</sampStrategy>
Samples taken with the aim of detecting illegal use or controlling compliance against legal limits laid down in legislation **(Selective sampling / Targeted sampling)**	<sampStrategy>ST20A</sampStrategy>
For risk based sampling, e.g. to enforce provisions of Regulation (EC) No 669/2009 on the increased level of official controls on imported food/feed or for samples taken after RASFF notifications or follow-up enforcement samples **(Suspect sampling)**	<sampStrategy>ST30A</sampStrategy>
Samples taken for reasons of suspicion or due to enhanced surveillance e.g. under emergency measures at import.	<sampStrategy>ST30A</sampStrategy>

B.04 Programme type (progType)

This element is used to discriminate between samples taken in the framework of EU coordinated programmes and other sampling programmes.

Codes can be selected from the **PRGTYP** catalogue

Example	XML
Samples taken that are part of a programme which is designed and coordinated at a European level e.g. in the framework of the EU coordinated programme (EUCP) as defined in Article 29 of Regulation (EC) No 396/2005 at defined in Regulation (EU) No 480/2013	<progType>K009A</progType>
Samples taken that are part of a programme which is designed and coordinated and at a National level	<progType>K005A</progType>

doi: 10.5281/zenodo.2543211

B.05 Sampling method (sampMethod) (Optional)

Reference to the legislation, protocol or other documentation describing the method of selecting samples from the food chain.

Codes can be selected from the **SAMPMD** catalogue.

Example	XML
Samples taken for the control of dioxins, dioxin-like PCBs and non-dioxin-like PCBs in certain foodstuffs according to **Commission Regulation (EU) 2017/644**	<sampMethod>N040A</ sampMethod>
For samples taken in the framework of Regulation (EC) No 396/2005 and According to **Directive 2002/63/EC**	<sampMethod>N009A</sampMethod>
For monitoring of certain substances and residues thereof in certain animal products in the framework of Directive 96/23/EC and According to Commission **Decision 97/747/EC**	<sampMethod>N010A</sampMethod>
Samples where **no standardised sampling methodology** has been defined	<sampMethod>N020A</sampMethod>

B.06 Sampler (sampler)

Person or persons responsible for taking a sample.

Codes can be selected from the **SAMPLR** catalogue.

Example	XML
Samples taken in the context of an **official control**	<sampler>CX02A</sampler>
Samples taken by **food business operators**	<sampler>CX01A</sampler>

B.07 Sampling point (sampPoint)

Sampling point describes the point in the food chain where the sample was taken.

Codes can be selected from the **SAMPNT** catalogue. In order to generate the national reports a specific analysis hierarchy is applied for VMPR.

Example	XML
Milk samples taken at the level of the dairy industry before the bulk tanker has discharged	<sampPoint>E301A</sampPoint>
Eggs taken in the collection/packing centres (provided that it is possible to identify the source farm)	<sampPoint>E600A</sampPoint>
Samples classed as import samples	<sampPoint>E010A</sampPoint>
Samples taken at retail	<sampPoint>E520A</sampPoint>

C.01 Sampling event identification code (sampEventId) Optional

sampEventId is the unique identifier representing the sampling unit extracted at a certain time from the sampled population. This identifier can be reported when multiple samples are taken from a single sampling unit at a point in time. The sampling unit could be a batch, an animal, a flock or a herd and the Sampling Unit Type can optionally be reported in C.02 sampUnitType and C.05 sampUnitIds.

doi: 10.5281/zenodo.2543211

If a value is not reported in sampEventId, the sampId will be automatically substituted during the data submission process.

Example: Reporting samples of kidney and muscle taken from a single pig at slaughter. In this case reports presenting the number of sample units taken for comparison with national sampling plans will show 1 pig (ID IT1234) which is complaint.

sampEventId	sampId	sampMatCode.base	sampMatText	sampUnTyp	sampUnitIds	paramCode	resId	evalCode	evalInfo.com
CY2017X001	CY2017X001/K	A01YM	Pig kidney	G199A (animal)	IT1234	RF-00000581-VET	CY2017RI001	J002A	Positive result for 5 plate screening test
CY2017X001	CY2017X001/M	A01RG	Pig fresh meat	G199A (animal)	IT1234	RF-00000581-VET	CY2012RI002	J002A	Confirmatory test in muscle was below the MRL of 100 µg/kg

C.02 Sampling unit type (sampUnitType) Optional

Describes the sampling unit defined in sampling method. It can be used to indicate whether the sample contains material from multiple individuals or lots. This is used in the example above to indicate that the 2 samples were taken from 1 pig.

Codes can be selected from the SAMPUNTYP catalogue.

Example	XML
Milk samples taken at the level of the dairy industry before the bulk tanker has discharged	<sampUnitType>G202A</sampUnitType >
Single samples (e.g. one animal or one fruit) which are not representative for a lot/batch	<sampUnitType>G203A</sampUnitType >

D.01 Sample taken identification code (sampId)

Each sample must be identified by a unique sample identification number not longer than 100 characters. Where multiple analytical results are reported for a sample (e.g. results for different residues analysed in the same sample using multi-residue methods and/or several single residue methods), the same sampId has to be used for all the results. The sample identification code is used to determine the overall status of the sample (e.g. compliant/non-compliant) based on the all the results reported for the substances/marker residues measured in the sample.

Example	XML
Unique identifier for sample from 2017 in Italy	<sampId>IT_2017_AS000023456</sampId>

D.03 Country of sampling (sampCountry)

Indicate using ISO 3166-1-alpha-2 country codes the country where the sample was taken.

doi: 10.5281/zenodo.2543211

Codes can be selected from the **COUNTRY** catalogue.

Example	XML
Sample taken in Greece	<sampCountry>GR</sampCountry>

D.06 Year of sampling (sampY), D.07 Month of sampling (sampM), D.08 Day of sampling (sampD)

Complete date when the sample was taken. The information on the date of sampling is required to check the sample compliance against legal limits applicable at the time of sampling.

Example	XML
Friday 16 February 2018	<sampY>2018</sampY> <sampM>02</sampM> <sampD>16</sampD>

D.11 Original sample identifier (sampInfo.origSampId) Optional

This element can be used to indicate that subsequent sampling and testing is linked to an original non-complaint or contaminated sample. This would offer the possibility to separate samples taken to support a specific investigation from routine monitoring samples.

E.02 Coded description of the matrix of the sample taken (sampMatCode)

The encoding of samples in FoodEx2 should be according to the guidance for the harmonised use of the FoodEx2 system and the quality control of the codes (EFSA, 2015). For describing the food product analysed, normally the code reflecting the lowest level of detail is to be used (e.g. select the code for tomatoes instead of the code for Solanacea).

FoodEx2 requires that a base term is always supplied. If the implicit facets are sufficient to characterise the matrix sampled (see table below), only a base term needs to be reported.

FoodEx2 Codes can be selected from the **MTX** catalogue using the Reporting Hierarchy which includes base terms for Feed and non-food animal matrices. In order to generate the national/annual reports and classify samples according to legal limits or legislative groups, specific analysis hierarchies are defined using the information provided in sampMatCode.

For veterinary residues monitoring where no suitable base term exists the default base term can be used: A0C60 = Non-food animal-related matrices.

Table 1 below provides additional information about FoodEx2 facets which are of particular relevance to the domains which fall within the remit of these Chemical Monitoring Reporting Guidelines.

doi: 10.5281/zenodo.2543211

Table 1: FoodEx2 main facets description and their relevance for the different data collections domains

facet	VMPR	Pesticides	Contaminants	Additives	Other substances
F01 source	Indicate the type of animal species sampled this can include the purpose of rearing for example, whether the chickens are laying hens or broilers Classification of samples as bovines, pigs, sheep, goats, horses, poultry, aquaculture, rabbit or game are based on this facet. It is important to select a facet at species level or lower	Define the 'origin' of the **raw commodity**; usually, it is already assigned as 'implicit facet'.	Plant, animal, organism or source of the raw agricultural commodity. For fish and seafood samples the species must be specified For alga-based products the species of alga must be specified	Plant, animal, organism or source of the raw agricultural commodity	Plant, animal, organism or source of the raw agricultural commodity.
F02 part-nature	Must be reported since for many MRLs the legal limit applied is dependent on the target tissue Classification of samples as egg, milk or honey are based on this facet	Part sampled, for example indicating fat samples from animals	Part sampled	Part sampled	Part sampled
F04 ingred		For reporting the ingredients of **composite food samples**	Recommended for the following products • "Potato crisps", "Pre-cooked French fries, potato products for home cooking", "Breakfast cereals (excluding muesli and porridge)" "Substitute coffee (dry)" and "Baby foods, other than processed cereal based foods" • rice based products • alga-based foods for special nutritional uses • compound products for infants and small children, including ready-made meals, diet supplements, herb mixes and spice mixes	Repeatable facet to be used to characterise composite foods	

doi: 10.5281/zenodo.2543211

facet	VMPR	Pesticides	Contaminants	Additives	Other substances
F17 cookext			Heat treatment applied to food required for Furans and Acrylamide		
F18 packMat			Commission Regulation (EC/333/ 200712) gives specific instruction to avoid certain containers when analysing PAHs. Therefore it is mandatory to describe the container or wrapper that holds the product.		
F20 part-consumed-analysed		Where Meat (as part-nature) or it's children codes are reported then part-consumed-analysed must be used to indicate presence of fat A0F4V = Excluding visible fat or A0F4T = Including visible fat			
F21 prod	A07RY should be used to identify wild game Classification of samples as wild game is based on this facet	Required to perform the data analysis regarding the residue situation in **organic food** compared with **conventionally produced** food.	Recommended. Required to perform the data analysis regarding the mycotoxin situation in organic food compared with non-organic food.		
F27 source-commodities		Report the representative lead crop. It defines the origin of the derivatives for **'processed' food samples** made–up of one single food/ingredient (e.g. orange juice or canned tuna. This facet describes the RPC from which an ingredient or derivative has been obtained. However, in some food groups, like cheeses or fruit juices, products of the same nature of the ones from one raw source, but from mixed raw sources are encountered.	This facet describes the RPC from which an ingredient or derivative has been obtained. However, in some food groups, like cheeses or fruit juices, products of the same nature of the ones from one raw source, but from mixed raw sources are encountered.		
F28 process		Required to distinguish processed food samples. This distinction is important for the pesticide residue data as MRL compliance is checked/verified considering the results expressed for 'Unprocessed' food samples. For processed products derived from raw agricultural products (as specified in Annex I of Regulation (EC) No 396/2005), the most	Required to distinguish processed food samples. However a more detailed classification should be used where possible	Required to distinguish processed food samples.	Required to distinguish processed food samples.

doi: 10.5281/zenodo.2543211

facet	VMPR	Pesticides	Contaminants	Additives	Other substances
		specific code for processing has to be selected.			
F31 gender	Required when reporting stilbenes and their derivatives (A1), antithyroid agents (A2) and steroids (A3)				
F32 animal-age-class	Required when reporting stilbenes and their derivatives (A1), antithyroid agents (A2) and steroids (A3)				

doi: 10.5281/zenodo.2543211

Example	XML
Pig kidney (A01YM): It is composed of the following implicit facets where F01.A057F = Pigs and F02.A069N = Kidney	<sampMatCode>A01YM</sampMatCode>
Sheep for meat production - Blood serum A0C60 = Non-food animal-related matrices F01.A0CDE= Sheep for meat production and F02.A0CEY = Blood serum (as part-nature)	<sampMatCode>A0C60#F01.A0CDE$F02.A0CEY</sampMatCode> <sampMatCode.building>A0C60</sampMatCode.building> <sampMatCode.source>A0CDE</sampMatCode.source> <sampMatCode.part>A0CEY</sampMatCode.part>
Urine sample from a dairy cow A0C60 = Non-food animal-related matrices F01.A0C9L = Dairy cow and F02.A0CET = Urine (as part-nature) F31.A0C8V = Young non-adult mammal (above 1 year)	<sampMatCode>A0C60#F01.A0C9L$F02.A0CET$F31.A0C8V</sampMatCode> <sampMatCode.building>A0BT1</sampMatCode.building> <sampMatCode.source>A057F</sampMatCode.source> <sampMatCode.part>A0F0Y</sampMatCode.part> <sampMatCode.animal-age-class>A0F0Y</sampMatCode.animal-age-class>
Royal jelly	<sampMatCode>A0CVG</sampMatCode>
Processed cereal-based foods for infants and young children	<sampMatCode>A03QX</sampMatCode>
Infant formulae	<sampMatCode>A0EQM</sampMatCode>
Follow/on formulae	<sampMatCode>A0EQL</sampMatCode>
Herbal tea for infants (dry) Other food for infants and children, SOURCE-COMMODITIES = Herbal infusion materials from leaves and herbs, PROCESS = Unprocessed	<sampMatCode>A03RL#F27.A03JK$F28.A0C0S</sampMatCode> <sampMatCode.building>A03RL</sampMatCode.building> <sampMatCode.rawsource>A03JK</sampMatCode.rawsource> <sampMatCode.techno>A0C0S</sampMatCode.techno>
Pasteurised eggs from organic farming A031G = Hen eggs matrices F21. A07SE = Organic and F28. A07HV = Pasteurisation	<sampMatCode>A031G#F21.A07SE$F28.A07HV</sampMatCode> <sampMatCode.building>A031G</sampMatCode.building> <sampMatCode.prod>A07SE</sampMatCode.prod> <sampMatCode.techno>A07HV</sampMatCode.techno>
Potato crisp (category 2): indicate whether batch fried or continuously fried A011L = Potato crisps or sticks F17.A07MY = Outside light brown	<sampMatCode>A011L#F17.A07MY</sampMatCode> <sampMatCode.building>A011L</sampMatCode.building> <sampMatCode.cookext>A07MY</sampMatCode.cookext>
Crisp bread (category 6): indicate whether the product is baking A0CHT = Crisp bread F28.A07GX = Baking	<sampMatCode>A0CHT#F28.A07GX</sampMatCode> <sampMatCode.building>A0CHT</sampMatCode.building> <sampMatCode.techno>A07GX</sampMatCode.techno>
Roasted coffee (category 7): indicate the extent of cooking (light brown, brown, Outside	<sampMatCode>A03GL#F17.A07MY</sampMatCode> <sampMatCode>A03GL#F17.A07MZ</sampMatCode> <sampMatCode>A03GL#F17.A07NA</sampMatCode>

doi: 10.5281/zenodo.2543211

Example	XML
dark brown/slightly burned) A03GL = Coffee beans, roasted F17.A07MY= Outside light brown F17.A07MZ= Outside brown F17.A07NA= Outside dark brown/slightly burned	 <sampMatCode.building>A03GL</sampMatCode.building> <sampMatCode.cookext>A07MY</sampMatCode.cookext> <sampMatCode.building>A03GL</sampMatCode.building> <sampMatCode.cookext>A07MZ</sampMatCode.cookext> <sampMatCode.building>A03GL</sampMatCode.building> <sampMatCode.cookext>A07NA</sampMatCode.cookext>
Chewing gum	<sampMatCode>A035M</sampMatCode>

E.03 Text description of the matrix of the sample taken (sampMatText) Optional

This free text field can be completed to describe the product sampled. It can be used in cases where the FoodEx2 coding is complex and the data provider is unsure as to whether the correct codes have been selected or in cases where there are no suitable codes to describe the item sampled.

The description of the product sampled must not include the brand name unless the open data policy of the reporting country permits the publication of this information. This information will not be validated by EFSA.

E.04 Country of origin on the sample taken (origCountry)

The country of origin must be completed for all samples in ISO 3166-1-alpha-2 format. Reporting countries are encouraged to identify the origin of the product, in particular for unprocessed (raw) food products and for cases where a non/compliant sample has been found. A single country of origin should be reported as described in the labelling requirements of Regulation (EU) No 1169/2011.

Codes can be selected from the **COUNTRY** catalogue.

Example	XML
Rice from **Thailand** packed in Iceland	<origCountry>TH</origCountry>
Individual **country cannot be determined** (unspecific codes such as XC, XD, XE can be selected. If needed at reporting stage e.g. for Pesticides Annual Report, these can be aggregated.	<origCountry>XX</origCountry>

E.06 Area of origin for fisheries or aquaculture activities code of the sample taken (origFishAreaCode) Optional

For fish, seafood and other marine products the FAO fishing area should be reported.

Codes can be selected from the **FAREA** catalogue.

Example	XML
Baltic herring caught in **Skagerrak and Kattegat**	<origFishAreaCode>M27IIIa</origFishAreaCode>

doi: 10.5281/zenodo.2543211

F.03 Year of analysis (analysisY)

The year of analysis must be reported for all results.

Example	XML
Sample analysed in 2017	<analysisY>2017</analysisY >

H.01 Sample analysed portion sequence anPortSeq (Optional)

A sequential number (e.g. 1, 2, 3) that is used when a laboratory sample is analysed for the same substance on more than one occasion. For example in multiple stage testing where a sample may be tested using several increasingly sensitive analytical methods to determine the final result.

When reporting results which are subject of assessment against a legal limit, anPortSeq should not be used. Either

- the result derived with the most accurate or reliable analysis has to be reported
- or where samples were analysed with equally accurate techniques, the mean value should be reported.

J.01 Identification code of the laboratory (labId)

A unique code to identify each laboratory providing laboratory results should be reported here (i.e. the national laboratory code). This code should also be used when providing information on participation in proficiency tests in National Reports.

Example	XML
National reference laboratory of Poland	<labId>PolandNRL</labId>

J.02 Laboratory Accreditation (labAccred)

This mandatory element indicates whether the laboratories performing the analysis have been accredited as required in Article 12 of Regulation (EC) No 882/2004.

For pesticide monitoring only two codes from the LABACC catalogue may be used (see Table below).

Codes can be selected from the LABACC catalogue.

Example	XML
Accredited according to ISO/IEC 17025 for pesticides analysis.	<labAccred>L001A</labAccred>
For results generated by laboratories not or not yet accredited according to ISO/IEC 17025 for pesticide residues (e.g. When the laboratory is awaiting the final audit form the accreditation body.	<labAccred>L003A</labAccred>

J.03 Laboratory country (labCountry)

Indicate using ISO 3166-1-alpha-2 country codes the country where the laboratory is located.

doi: 10.5281/zenodo.2543211

Codes can be selected from the **COUNTRY** catalogue.

Example	XML
Germany	<labCountry>DE</labCountry>

K.01 Type of parameter (paramType)

Substances' Residue definitions used for MRLs can be broadly split into two types:

- 'Simple': Compounds that can (by reference laboratory agreement) be analysed using one single calibration substance (in terms of identity: Same substance or same mix of isomers etc.);
- 'Multicomponent': Compounds that can (by reference laboratory agreement) be analysed using several different calibration substances (e.g. the parent compound and one or more metabolites)

EFSA realises that in enforcement practice laboratories are not always in the position to analyse for the full Multicomponent legal residue definitions. For the correct interpretation of the analytical results submitted to EFSA, it is essential to know whether a sample was analysed for all components of the legal residue definition or not; thus, the mandatory data element paramType was introduced to this scope.

Codes can be selected from the **PARAMTYP** catalogue.

Example: reporting screening results for "Sum of enrofloxacin and ciprofloxacin" in animal muscle

paramType	paramCode	paramText	resId	resLOQ	CCalpha	CCbeta	resType	resEval
P002A	RF-00000551-VET	Enrofloxacin	RI1	10		50	BIN	J029A
P002A	RF-00000695-VET	Ciprofloxacin	RI2	10		50	BIN	J029A

Example: reporting confirmatory results for "Sum of enrofloxacin and ciprofloxacin" in animal muscle which are below the MRL. The reporting of results RI4 and RI5 is recommended

paramType	paramCode	paramText	resId	resLOQ	CCalpha	CCbeta	resType	resEval
P005A	RF-00004508-PAR	Sum of enrofloxacin and ciprofloxacin	RI3	10	25		VAL	J002A
P002A	RF-00000551-VET	Enrofloxacin	RI4	10			VAL	J029A
P002A	RF-00000695-VET	Ciprofloxacin	RI5	10			LOQ	J029A

doi: 10.5281/zenodo.2543211

Example: reporting results for "Aflatoxins" in cereal products not used as animal feed where the 'Aflatoxin (sum of B1, B2, G1, G2)' is not reported.

paramType	paramCode	paramText	resId	resLOQ	CCalpha	CCbeta	resType	resEval
P001A	RF-00000155-TOX	Aflatoxin M1	RI7	0.16			LOQ	J029A
P001A	RF-00000151-TOX	Aflatoxin B2	RI8	0.1			LOQ	J029A
P001A	RF-00000150-TOX	Aflatoxin G1	RI9	0.1			LOQ	J029A

Example: reporting aldicarb as 'sum of aldicarb, aldicarb sulfone and sulfoxide, expressed as aldicarb' in plant commodities below the MRL where all the components of the residue definition have been analysed.

paramType	paramCode	paramText	resId	resLOQ	CCalpha	CCbeta	resType	resEval
P005A*	RF-0020-001-PPP	Aldicarb (sum of aldicarb, its sulfoxide and its sulfone, expressed as aldicarb)	RI11	'blank' or 0.005 x 1 + 0.005 x 0.92 + 0.005 x 0.86 = 0.0139			LOQ	J002A
P002A	RF-0020-002	aldicarb	RI12	0.005			LOQ	J029A
P002A	RF-0020-003	aldicarb-sulfoxide	RI13	0.005			LOQ	J029A
P002A	RF-0020-004	aldicarb-sulfone	RI14	0.005			LOQ	J029A

* In case some components were not analysed, the paramType that should be used is P004A, instead of P005A.

Whilst it is not always possible to know the full legal residue definition (e.g. Sulphonamides) and therefore code P004A (Sum based on a subset) will typically be used, there are also cases where it is possible and P005A (Full legal residue definition analysed) is appropriate.

K.02 Code description of parameter code (paramCode)

The parameter code is used to identify the substance analysed for by the laboratory

Codes can be selected from the **PARAM** catalogue.

doi: 10.5281/zenodo.2543211

In order to generate the national/annual reports and classification according legal limits or legislation a specific hierarchy is applied for VMPR, Pesticides, Contaminants and Additives.

Example	XML
Results of analysis for **Aflatoxins sum of B1, B2, G1 and G2**	<paramCode>RF-00000435-TOX</paramCode>
Results of analysis for **Cloxacillin**	<paramCode>RF-00000566-VET</paramCode>
Results of testing for the sweetener **Saccharin**	<paramCode>RF-00000013-ADD</paramCode>
Results of analysis for **Terbacil**	<paramCode>RF-0912-001-PPP</paramCode>

L.01 Analytical method identification (anMethRefId)

Code to identify an analytical method used within the laboratory, links all results obtained from the same analytical method.

Example	XML
Delvo test for antibacterial substances in bulk milk validated in 2017	<anMethRefId >BulkMilkAntibioticSCR2017</anMethRefId>
GC-MS analysis for pesticide residues in honey used in the NRL	<anMethRefId >NRLGC-MSHoney</anMethRefId>

L.03 Analytical method type (anMethType), L.04 Analytical method code (anMethCode)

The analytical method type is used to indicate whether the analysis was performed to detect the presence of a substance/class of substances (Screening) or to quantify/unequivocally identify the substance (Confirmation). Screening should be selected when the result is either positive or negative e.g. microbial inhibition assays for antibacterial substances and can be selected when quantitative test results are below LOQ or ccBeta. The analytical method code describes the type of analysis performed by the laboratory

Codes can be selected from the **ANLYTYP** catalogue and the **ANYLMD** catalogue. A specific reporting hierarchy is applied for chemical reporting.

Example	XML
Charm II test to **screen** for tetracyclines in animal tissues	<anMethType>AT06A</anMethType> <anMethCode>F580A</anMethCode>
Multi-residue method using **gas chromatography with tandem mass spectrometry**	<anMethType>AT08A</anMethType> <anMethCode>F049A</anMethCode>
LC-MS/MS used to **quantify** unauthorised residues in animal samples	<anMethType>AT08A</anMethType> <anMethCode>F049A</anMethCode>

M.01 Result identification code (resId)

This must be provided for every record in the dataset and must be unique for an analytical result reported for a sample across all data collections from a data provider. This identifier is used for communication between EFSA and the data provider during the submission and validation phase.

doi: 10.5281/zenodo.2543211

It is recommended to include certain pre-fixes or suffixes to ensure the resId is unique within the country.

Example	XML
Result reported by the Estonian veterinary laboratory in year 2017	<resId>EEVetLab2017_0009845634</resId>
Result reported by the Italian pesticides NRL in year 2017	<resId>ITNRL2017_ADE0000456792</resId>
Result reported by Danish food testing laboratory in 2017	<resId>DKDTU2017_K0000034597X</resId>

M.02 Accreditation procedure for the analytical method (accredProc)

This code describes the validation/accreditation status of the method linked to anMethRefId.

Codes can be selected from the **MDACC** catalogue.

Example	XML
Method accredited according to **ISO/IEC17025** and **validated according to Commission Decision 2002/657/EC**	<accredProc>V007A</accredProc>

M.03 Result unit (resUnit)

The code for the units of measurement for the values resLOD, resLOQ, resVal, CCalpha or CCbeta. Where a legal limit applies the results should be reported in the same units of measurement. Where no legal limit applies the results should be reported in the standard SI units for concentrations grams, milligrams, micrograms, picograms or nanograms per kilogram, gram or litre (for liquids).

Codes can be selected from the **UNITS** catalogue.

Example	XML
Reporting the results of Pesticide monitoring in **Milligram/kilogram**	<resUnit>G061A</resUnit>
Reporting the results of testing for Beta-agonists in **Microgram/kilogram**	<resUnit>G050A</resUnit>
Reporting the results of testing for Mycotoxins in **Microgram/kilogram**	<resUnit>G050A</resUnit>
Reporting the results of testing for Metals in **Milligram/kilogram**	<resUnit>G061A</resUnit>
Reporting the results of testing for Dioxins and PCBs in **Picogram/gram**	<resUnit>G080A</resUnit>
Reporting the results of testing for PAHs in **Microgram/kilogram**	<resUnit>G050A</resUnit>

M.04 Result LOD (resLOD) Optional

The LOD is the lowest concentration that can be determined to be statistically different from a 'blank' analytical result. Results with the LOD reported may be used by EFSA for assessing new scenarios in estimating the consumer's chronic exposure. resLOD must be reported if resType = LOD

Example	XML

doi: 10.5281/zenodo.2543211

Example	XML
Result reported as LOD with a Limit of detection = 0.001	<resLOD>0.001</resLOD>

M.05 Result LOQ (resLOQ)

The resLOQ, the numerical value of the Limit of Quantification, should be reported as this information will be used for estimating uncertainty when the left censored results are used for exposure assessments. The LOQ is the lowest validated residue concentration or mass of the analyte that has been validated with acceptable accuracy by applying the complete analytical method, which can be quantified and reported by routine monitoring with validated methods

Example	XML
Limit of quantification = 0.005 milligram/kilogram	<resLOQ>0.005</resLOQ>

resInfo.notSummed

In line with the SANCO document for pesticides (SANCO/12574/2014 rev.5)[3], the following provisions for the reporting 'resLOQ' according to the residue definition type are described. For 'Multicomponent' pesticide residue definitions, EFSA requests to report the individual LOQ for each component of that residue definition and a summed LOQ, which is calculated by the reporting country.

If the reporting country cannot report the summed LOQ then resLOQ can be null if paramType = P005A or P004A and resInfo.notSummed is set to 'Y'. In this case, upon submission the LOQ will be calculated based on the LOQs reported for the individual components reported as paramType P002A. For this reason resLOQ for records with paramType=P002A is mandatory.

This approach is to avoid the issues created by some domains previously using a false value of '99999' in resLOQ when the summed LOQ was not possible. Business rules will be introduced to ensure that resLOQ can only be NULL where resInfo.notSummed = Y.

M.08 CCAlpha (CCalpha) and M.09 CCBeta (CCbeta) Optional

Decision limit (CCalpha) means the limit at and above which it can be concluded with an error probability of α that a sample is non-compliant. Since CCalpha accounts for measurement uncertainty this value should be reported for confirmatory results where the result is evaluated from compliance[4].

Detection capability (CCbeta) means the smallest content of the substance that may be detected, identified and/or quantified in a sample with an error probability of β. In the case of substances for which no permitted limit has been established, the detection capability is the lowest concentration at which a method is able to detect truly contaminated samples with a statistical certainty of 1 - β. In the case of substances with an established permitted limit, this means that the detection capability is the concentration at which the method is able to detect permitted limit concentrations with a statistical

[3] http://ec.europa.eu/food/plant/docs/plant_pesticides_mrl_guidelines_wrkdoc_11945.pdf
[4] http://data.europa.eu/eli/dec/2002/657/oj

doi: 10.5281/zenodo.2543211

certainty of 1 – β. The detection capability should be reported for screening methods for veterinary residues.

In the case of multicomponent MRLs where one or more of the components is quantified it is sufficient to report the CCalpha of the substance with the highest concentration (parent substance or metabolite) in the sample is used for the evaluation.

In cases of multicomponent MRLs where no component can be quantified, the CCalpha of the usual main component should be reported as «representative» for confirmatory tests.

For screening tests it is sufficient to report the CCbeta for the individual components.

For veterinary medicinal residues in Group A, Group B1 and B2 the reporting of either CCalpha or CCbeta is required.

Example	XML
CCalpha reported for a confirmatory test	<CCalpha>20</CCalpha>
CCbeta reported for a screening test	<CCbeta>350</CCbeta>

M.10 Result value (resVal) Optional

The resVal should be used to report the measured residue concentration of the substance in the product expressed in the units reported in resUnit. resVal is mandatory if resType = "VAL". If a sample was analysed with screening methods, the data element resVal should be left blank and resQualVal = NEG. resVal must be greater than 0.

For processed products in general, the results should be reported for the sample analysed, i.e. the processed product, without any recalculation of the result to the unprocessed product.

The distribution and descriptive statistics for quantifiable results for specific residues/markers in different matrices may be presented in the validation and web reports. These values would also be used in exposure assessments.

Example	XML
Measured concentration of a residue in a sample is 5.6 milligrams/kilogram	<resVal>5.6</resVal>

M.11 Result value recovery rate (resValRec) and M.12 Result value corrected for recovery (resValRecCorr) (Optional)

The numerical results of pesticide residue analysis should not be adjusted for recovery.

The results, from analytical methods which do not include an extraction step or analytical methods which use certified reference material at a certified concentration, should be reported uncorrected for extraction recovery during the sample preparation.

However for aflatoxins as described in Commission Regulation (EC) No 401/2006 and lead, cadmium, mercury, inorganic tin, 3-MCPD and benzo(a)pyrene as described in No 333/2007 the results should be adjusted for recovery and the recovery rate reported.

doi: 10.5281/zenodo.2543211

Example	XML
The concentration of Aflatoxin M1 was corrected for a recovery rate of 63%	<resValRec>63</resValRec> <resValRecCorr>Y</resValRecCorr>

M.13 Expression of result percentage (exprResPerc) and M.14 Expression of result type (exprResType) Optional

Used to indicate when the concentration is expressed as a percentage of a component of the sample for example on a dry weight basis.

Codes can be selected from the **EXPRRES** catalogue.

Example	XML
Results for a fat soluble pesticide measured in a butter sample **expressed as fat weight**	<exprResPerc>fatPerc=80</exprResPerc> <exprResType>B003A</exprResType> <exprResPerc.fatPerc>80</exprResPerc.fatPerc > <exprResType>B003A</exprResType>

M.15 Result qualitative value (resQualValue) Optional

Where qualitative screening results (for example biological tests) are reported with resType="BIN" then resQualValue must be reported and the accepted value is "NEG". For confirmatory results or quantifiable results resQualValue should not be reported.

Example	XML
Negative result for the presence of amoxicillin in a milk sample an using a Delvo test	<resQualValue>NEG</resQualValue >

M.16 Type of results (resType)

The resType indicates the type of analytical result obtained for a substance in a product.

Codes can be selected from the **VALTYP** catalogue.

Example	XML
The result can be quantified at a validated level and resVal is reported	<resType>VAL</resType>
The residue can be quantified but is below the reported value for CCalpha	<resType>CCA</resType>
The residue is below the limit of quantification and resLOQ is reported	<resType>LOQ</resType>
The residue is below the limit of detection and resLOD is reported	<resType>LOD</resType>
The result of a qualitative screening test	<resType>BIN</resType>
The residue cannot be detected and CCbeta is reported	<resType>CCB</resType>

doi: 10.5281/zenodo.2543211

N.01 Limit for the result evaluation (evalLowLimit) N.03 Type of limit for the result evaluation (evalLimitType) (Optional)

These two elements are used to report the legal limit applied when assessing a laboratory result. It is hoped to extend the pesticides MRL machine readable file the other chemical domains. Once established the reporting of these elements would only be required in cases where limits other than the official EU limits are in place at time of release of the latest MRL file are used to assess the result for compliance.

However in cases where the legal limit changes during the reporting season the legal limit applied must be reported.

For data collections where compliance against legal limits is required, EFSA performs some data plausibility cross-checks among the data elements which describe the result evaluation (resVal, evalCode, evalLimitType) and the MRL applicable may be dependent on the date of sampling.

Limit type codes can be selected from the **LMTTYP** catalogue.

Example	XML
Reporting pesticide residue EU MRL that has changed in the course of the monitoring year	<evalLowLimit>0.003</ evalLowLimit > <evalLimitType>W002A</evalLimitType >

N.04 Evaluation of the result (evalCode)

The evaluation (evalCode) should be applied at the level of each residue or marker included in the scope of the analytical method. It provides the judgement of the reporting country concluding whether the result reported was considered exceeding the legal limit that is applicable to the sample.

Evaluation codes can be selected from the **RESEVAL** catalogue.

Example	XML
The residue in the sample is considered to be **above the level of concern**. For **residues** this code is selected in case the numerical value of the quantified residues is clearly above the legal limit taking into account the analytical measurement uncertainty; thus, the result should be evaluated against the legal limit set under the relevant MRL legislation or to indicate the detection of substances having anabolic effect or unauthorised substances as specified in Council Directive 96/23/EC. It should **not** be used to indicate whether the measured residue in samples produced in EU that is not approved at EU level according to Regulation 1107/2009 (on the approved uses of plant protection products), nor to assess the presence of a pesticide residue (within a legal limit) in organic products that is not permitted in organic farming.	<evalCode>J003A</evalCode>
The residue in the sample is considered to be **below the level of concern.**	<evalCode>J002A</evalCode>
The residue was **not evaluated**, for example the residue is only part of the full residue definition (paramType = "Part of a sum" (P002A)).	<evalCode>J029A</evalCode>

doi: 10.5281/zenodo.2543211

Example	XML
The residue was **not evaluated** as no limit applies to the substance or residue measured in the sample.	<evalCode>J029A</evalCode>
The residue in the sample is considered to be **compliant** accounting for measurement uncertainty.	<evalCode>J031A</evalCode>

N.05 Action taken (actTakenCode) N.06.1 Conclusion of follow-up investigation (evalInfo.conclusion) and N.06.2 Comment (evalInfo.com) Optional

Action taken should be reported in case a non-conformity is identified during the control activities or in case a measured residue is found above the level of concern. Multiple actions can be reported.

This is important for the pesticide samples taken in the framework of Regulation (EC) No 669/2009 during the border inspections, e.g. it should be reported whether a sample that was found non-compliant with the EU MRL was rejected at the border, or whether the lot was available for consumption in the EU territory.

Conclusion is used to classify the findings of follow-up investigations. The comment element allows additional details on non-compliant results or non-conformities. This element may be included in reports listing non-compliant results.

Conclusion and Info can also be used to indicate when results are above a legal limit but the final evaluation is compliant e.g. cases of natural occurrence.

Action taken codes can be selected from the **ACTION** catalogue.

Conclusion codes can be selected from the **CONCLUS** catalogue.

Example	XML
Follow-up **investigation** indicates **illegal treatment** and additional sampling is planned	<actTakenCode>I</actTakenCode> <evalInfo>conclusion=C04A$COM=increased testing for this product in aquaculture is planned</evalInfo> <actTakenCode>I</actTakenCode> <evalInfo.conclusion>C04A</ evalInfo.conclusion> <evalInfo.com>increased testing for this product in aquaculture is planned </evalInfo.com>
The result was non-compliant and there has been a **Rapid Alert Notification in RASFF**	<resEvalCode>J003A</resEvalCode> <actTakenCode>R</actTakenCode> <evalInfo>COM=Reference number 2018.1567</evalInfo> <actTakenCode>R</actTakenCode> <evalInfo.com>Reference number 2018.1567 </evalInfo.com>
Result considered to be compliant since **investigations** indicate exceedance may be due to **natural occurrence of the substance**	<resEvalCode>J002A</resEvalCode> <actTakenCode>I</actTakenCode> <evalInfo>conclusion=C05A$COM= **investigations** indicate exceedance may be due to **natural occurrence of the substance** </evalInfo> <actTakenCode>I</actTakenCode> <evalInfo.conclusion>C05A</evalInfo.conclusion> <evalInfo.com> **investigations** indicate

doi: 10.5281/zenodo.2543211

Example	XML
	exceedance may be due to **natural occurrence of the substance** </evalInfo.com>

doi: 10.5281/zenodo.2543211

3. Table 2 Full list of SSD2 elements and mapping to SSD1 and mandatory SSD2 elements to be reported for the harmonised chemical monitoring

Element Code	*Element Name*	*Element Label*	*Type*	*Controlled terminology*	*Mandatory/optional element for harmonised chemical reporting*[5]	*SSD1 element name*	*SSD1 element code*
A.01	localOrgId	Local organisation identification code	xs:string (100)			localOrgId	O.1
A.02	localOrgCountry	Local organisation country	xs:string (2)	COUNTRY		localOrgCountry	O.2
A.03	localOrgInfo	Local organisation additional information	*CompoundType*				
B.01	progId	Sampling programme identification code	xs:string (100)		**Mandatory**	progCode	S.31
B.02	progLegalRef	Programme legal reference	xs:string (5)	LEGREF	**Mandatory**	progLegalRef	S.32
B.03	sampStrategy	Sampling strategy	xs:string (5)	SAMPSTR	**Mandatory**	progSampStrategy	S.33
B.04	progType	Programme type	xs:string (5)	PRGTYP	**Mandatory**	progType	S.34
B.05	sampMethod	Sampling method	xs:string (5)	SAMPMD	Optional	sampMethod	S.35
B.06	sampler	Sampler	xs:string (5)	SAMPLR	**Mandatory**		
B.07	sampPoint	Sampling point	xs:string (5)	SAMPNT	**Mandatory**	sampPoint	S.39
B.08	progInfo	Additional sampling program information	*CompoundType*				
C.01	sampEventId	Sampling event identification code	xs:string (100)		Optional		
C.02	sampUnitType	Sampling unit type	xs:string (5)	SAMPUNTYP	Optional		
C.03	sampUnitSize	Sampling unit size	xs:double			lotSize	S.37
C.04	sampUnitSizeUnit	Sampling unit size unit	xs:string (5)	UNIT		lotSizeUnit	S.38
C.05	sampUnitIds	Other sampling unit identifications	*CompoundType*				
C.06	sampEventInfo	Additional sampling event information	*CompoundType*				
D.01	sampId	Sample taken identification code	xs:string (100)		**Mandatory**	labSampCode	S.01
D.02	repCountry	Reporting country	xs:string (2)	COUNTRY			
D.03	sampCountry	Country of sampling	xs:string (2)	COUNTRY	**Mandatory**	sampCountry	S.04
D.04	sampArea	Area of sampling	xs:string (5)	NUTS		sampArea	S.05

[5] All SSD2 elements are listed, the status (Mandatory or Optional) of the elements included in this proposal for harmonised chemical monitoring are listed in this column

doi: 10.5281/zenodo.2543211

Element Code	*Element Name*	*Element Label*	*Type*	*Controlled terminology*	*Mandatory/optional element for harmonised chemical reporting*[5]	*SSD1 element name*	*SSD1 element code*
D.05	repYear	Reporting year	xs:integer (4)				
D.06	sampY	Year of sampling	xs:integer (4)		**Mandatory**	sampY	S.28
D.07	sampM	Month of sampling	xs:integer (2)		**Mandatory**	sampM	S.29
D.08	sampD	Day of sampling	xs:integer (2)		**Mandatory**	sampD	S.30
D.09	sampSize	Sample taken size	xs:double				
D.10	sampSizeUnit	Sample taken size unit	xs:string (5)	UNIT			
D.11	sampInfo.OrigSampId	Additional Sample taken information	xs:string (100)		Optional		
E.01	sampMatType	Type of matrix	xs:string (5)	MTXTYP			
E.02	sampMatCode	Coded description of the matrix of the sample taken	*CompoundType*	MTX	**Mandatory**	EFSAProdCode, prodProdMeth, prodPack, prodTreat, prodIngred	S.12, S.15, S.16, S.17, S.20
E.03	sampMatText	Text description of the matrix of the sample taken	xs:string (250)		Optional	prodText	S.14
E.04	origCountry	Country of origin of the sample taken	xs:string (2)	COUNTRY	**Mandatory**	origCountry	S.06
E.05	origArea	Area of origin of the sample taken	xs:string (5)	NUTS		origArea	S.07
E.06	origFishAreaCode	Area of origin for fisheries or aquaculture activities code of the sample taken	xs:string (10)	FAREA	Optional	origFishAreaCode	S.08
E.07	origFishAreaText	Area of origin for fisheries or aquaculture activities text of the sample taken	xs:string (250)			origFishAreaText	S.09
E.08	procCountry	Country of processing of the sample taken	xs:string (2)	COUNTRY		procCountry	S.10
E.09	procArea	Area of processing of the sample taken	xs:string (5)	NUTS		procArea	S.11
E.10	sampMatInfo	Additional information on the matrix sampled	*CompoundType*			prodCom, prodY, prodM, prodD, expiryY, expiryM, expiryD, prodManuf, prodBrandName	S.21, S.22, S.23, S.24, S.25, S.26, S.27,

doi: 10.5281/zenodo.2543211

Element Code	*Element Name*	*Element Label*	*Type*	*Controlled terminology*	*Mandatory/optional element for harmonised chemical reporting*[5]	*SSD1 element name*	*SSD1 element code*
							S.19, S.18
F.01	sampAnId	Sample analysed identification code	xs:string (100)				
F.02	sampAnRefTime	Sample analysis reference time	xs:string (5)	REFTM			
F.03	analysisY	Year of analysis	xs:integer (4)		**Mandatory**	analysisY	R.02
F.04	analysisM	Month of analysis	xs: integer (2)			analysisM	R.03
F.05	analysisD	Day of analysis	xs: integer (2)			analysisD	R.04
F.06	sampAnInfo	Additional information on the sample analysed	*CompoundType*				
G.01	anMatCode	Coded description of the analysed matrix	*CompoundType*	MTX			
G.02	anMatText	Text description of the matrix analysed	xs:string (250)				
G.03	anMatInfo	Additional information on the analysed matrix	*CompoundType*				
H.01	anPortSeq	Sample analysed portion sequence	xs:string (100)			labSubSampCode	S.02
H.02	anPortSize	Sample analysed portion size	xs:double				
H.03	anPortSizeUnit	Sample analysed portion size unit	xs:string (5)	UNIT			
H.04	anPortInfo	Additional information on the sample analysed portion	*CompoundType*				
I.01	isolId	Isolate identification	xs:string (100)				
I.02	isolParamCode	Coded description of the isolate	*CompoundType*	PARAM			
I.03	isolParamText	Text description of the isolate	xs:string (250)				
I.04	isolInfo	Additional information on the isolate	*CompoundType*				
J.01	labId	Laboratory identification code	xs:string (50)		**Mandatory**	labCode	L.1
J.02	labAccred	Laboratory accreditation	xs:string (1)	LABACC	**Mandatory**	labAccred	L.2
J.03	labCountry	Laboratory country	xs:string (2)	COUNTRY	**Mandatory**	labCountry	L.3

doi: 10.5281/zenodo.2543211

Element Code	*Element Name*	*Element Label*	*Type*	*Controlled terminology*	*Mandatory/optional element for harmonised chemical reporting*[5]	*SSD1 element name*	*SSD1 element code*
J.04	labInfo	Additional information on the laboratory	*CompoundType*				
K.01	paramType	Type of parameter	xs:string (5)	PARAMTYP	**Mandatory**	paramType	R.08
K.02	paramCode	Coded description of the parameter	*CompoundType*	PARAM	**Mandatory**	paramCode	R.06
K.03	paramText	Parameter text	xs:string (250)			paramText	R.07
L.01	anMethRefId	Analytical method identification	xs:string (50)		**Mandatory**	anMethRefCode	R.09
L.02	anMethRef Code	Analytical method reference code	xs:string (5)	ANLYREFMD			
L.03	anMethType	Analytical method type	xs:string (5)	ANLYTYP	**Mandatory**		
L.04	anMethCode	Analytical method code	*CompoundType*	ANLYMD	**Mandatory**	anMethCode	R.10
L.05	anMethText	Analytical method text	xs:string (250)			anMethText	R.11
L.06	anMethInfo	Additional information on the analytical method	*CompoundType*				
M.01	resId	Result identification code	xs:string (100)		**Mandatory**	resultCode	R.01
M.02	accredProc	Accreditation procedure for the analytical method	xs:string (5)	MDACC	**Mandatory**	accredProc	R.12
M.03	resUnit	Result unit	xs:string (5)	UNIT	**Mandatory**	resUnit	R.13
M.04	resLOD	Result LOD	xs:double		Optional	resLOD	R.14
M.05	resLOQ	Result LOQ	xs:double		**Mandatory**	resLOQ	R.15
M.06	resLLWR	Result lower limit of the working range	xs:double				
M.07	resULWR	Result upper limit of the working range	xs:double				
M.08	CCalpha	CC alpha	xs:double		Optional	CCalpha	R.16
M.09	CCbeta	CC beta	xs:double		Optional	CCbeta	R.17
M.10	resVal	Result value	xs:double		Optional	resVal	R.18
M.11	resValRec	Result value recovery rate	xs:double		Optional	resValRec	R.19
M.12	resValRecCorr	Result value corrected for recovery	xs:string (1)	YESNO	Optional	resValRecCorr	R.20
M.13	exprResPerc	Expression of result percentage	*CompoundType*		Optional	moistPerc, fatPerc	R.23 R.24
M.14	exprResType	Expression of result type	xs:string (5)	EXPRRES	Optional	exprRes	R.25
M.15	resQualValue	Result qualitative value	xs:string (3)	POSNEG	Optional	resQualValue	R.26

doi: 10.5281/zenodo.2543211

Element Code	*Element Name*	*Element Label*	*Type*	*Controlled terminology*	*Mandatory/optional element for harmonised chemical reporting*[5]	*SSD1 element name*	*SSD1 element code*
M.16	resType	Type of result	xs:string (3)	VALTYP	**Mandatory**	resType	R.27
M.17	resValUncert	Result value uncertainty	xs:double			resValUncert	R.22
M.18	resValUncertSD	Result value uncertainty Standard deviation	xs:double			resValUncertSD	R.21
M.19	resRefId	Result reference identification	xs:string (100)				
M.20	resInfo.notSummed	Indicates LOQ should be calculated during the submission process	xs:string (1)	'Y'	Optional	resComm	R.32
N.01	evalLowLimit	Limit for the result evaluation	xs:double		Optional	resLegalLimit	R.28
N.02	evalHighLimit	Limit for the result evaluation (High limit)	xs:double				
N.03	evalLimitType	Type of limit for the result evaluation	xs:string (5)	LMTTYP	Optional	resLegalLimitType	R.29
N.04	evalCode	Evaluation of the result	xs:string (5)	RESEVAL	**Mandatory**	resEvaluation	R.30
N.05	actTakenCode	Action Taken	xs:string(1)	ACTION	Optional	actTakenCode	R.31
N.06	evalInfo.conclusion	Conclusion of follow-up investigation	xs:string (5)	CONCLUS	Optional		
N.06	evalInfo.com	Comment	xs:string (250)		Optional		

doi: 10.5281/zenodo.2543211

References

EFSA (European Food Safety Authority), 2013. Standard Sample Description ver. 2.0. EFSA Journal 2013;11(10):3424, 114 pp. doi:10.2903/j.efsa.2013.3424

EFSA (European Food Safety Authority), 2014. Guidance on Data Exchange version 2.0 EFSA Journal 2014;12(12):3945, 173 pp. doi:10.2903/j.efsa.2014.3945

European Food Safety Authority, 2014. Guidance on the EU Menu methodology. EFSA Journal 2014;12(12):3944, 77 pp. doi:10.2903/j.efsa.2014.3944

European Food Safety Authority, 2015. The food classification and description system FoodEx2 (revision 2). EFSA supporting publication 2015:EN-804. 90pp http://onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2015.EN-804/epdf

European Food Safety Authority. (2018). Harmonized terminology for scientific research [Data set]. Zenodo. http://doi.org/10.5281/zenodo.1163629

FoodEx2 browser draft user guide
https://www.efsa.europa.eu/sites/default/files/assets/BrowsingToolInstruction.pdf

Glossary and Abbreviations

CCα	decision limit
CCβ	detection capability
DCF	Data Collection Framework
EC	European Commission
EEA	European Economic Association
EU	European Union
FoodEx2	food classification and description system version 2
GC–MS	Gas Chromatography – Mass Spectrometry
GDE2	Guidance on Data Exchange version 2.0
LOD	Limit Of Detection
LOQ	Limit Of Quantification
MRL	Maximum Residue Limit
MRPL	Minimum Required Performance Limit
MS	Member State
NUTS	Nomenclature of Territorial Units for Statistics
RASFF	Rapid Alert System for Food and Feed
RPA	Reference Point of Action
SSD2	Standard Sample Description version 2.0
VMP	Veterinary Medicinal Product
VMPR	Veterinary Medicinal Product Residues
WG-VDR	Working Group on VDRs Data Collection
XML	extensible Markup Language

doi: 10.5281/zenodo.2543211